WHAT IS CLAIMED IS:

1. A scanning exposure method for transferring a pattern formed on a mask to a divided area on a substrate through a projection optical system, while said mask and said substrate are synchronously moved, comprising the steps of:

deciding a focusing control mode to be used when said pattern is transferred onto the divided area in a plurality of focusing control modes, depending on a surface condition of the divided area;

transferring the pattern formed on the mask onto the divided area and performing said focusing control in the decided mode.

2. The scanning exposure method according to claim 1, wherein

said focusing control mode to be used is decided when said pattern is transferred, further considering a shape of an illumination area on said substrate.

3. The scanning exposure method according to claim 2, wherein

said plurality of focusing control modes include a first mode in which a tilt control in a direction of said synchronous moving of said substrate is performed by following-up the synchronous moving, and a second mode in which the tilt control in the direction of the synchronous moving of the substrate is not performed by following-up the synchronous moving.

4. The scanning exposure method according to claim 3, wherein

said surface condition of said divided area is represented as a spatial frequency distribution along said synchronous moving direction of said substrate, on which a repeating unit area of said pattern to be transferred having convex and concave along the synchronous moving direction, wherein the repeating unit area is placed in said divided area; and

a shape of said illumination area is represented as a slit width of said illumination area in the synchronous moving direction of the substrate.

5. The scanning exposure method according to claim 4, wherein

said substrate is controlled by using said focusing control in said first mode when a predominant wavelength is equal to or longer than a length depending on said slit width, wherein the predominant wavelength is corresponding to a predominant frequency, which has a maximum amplitude in said spatial frequency distribution; and

said substrate is controlled by using said focusing control in said second mode when a predominant wavelength is shorter than the length depending on the slit width.

6. The scanning exposure method according to claim 5, wherein

said length depending on said slit width is the slit width.

7. The scanning exposure method according to claim 1, wherein

said surface condition of said divided area is measured, prior to said transfer of said pattern formed on said mask onto the divided area.

8. The scanning exposure method according to claim 7, wherein

said surface condition of said divided area is measured in every lot of said substrate on which said pattern formed on said mask is transferred, prior to said transfer of the pattern.

9. The scanning exposure method according to claim 7, wherein

said surface condition of said divided area is measured in every exposure process said transfer of said pattern formed on said mask onto said substrate, prior to said transfer of the pattern.

10. The scanning exposure method according to claim 7, wherein

a plurality of said divided areas are arranged on said substrate; and

said surface condition of said substrate is measured

for one of the divided areas.

11. The scanning exposure method according to claim 1, wherein

said focusing control includes a focus position control which controls a position of said substrate in an optical axis direction of said projection optical system;

on a decision that said focus position control can not follow-up said synchronous moving, a control, wherein a position of the substrate in an optical axis direction of said projection optical system just prior to the decision is maintained, is performed.

12. The scanning exposure method according to claim 1, wherein

said focusing control includes a tilt control of said substrate in said synchronous moving direction;

on a decision that said tilt control can not follow-up said synchronous moving, a control, wherein a position of the substrate in an optical axis direction of said projection optical system just prior to the decision is maintained, is performed.

13. The scanning exposure method according to claim 1, wherein

said focusing control includes a tilt control which controls said tilt of said substrate, wherein the substrate is moved in a plane perpendicular to said optical axis direction

of said projection optical system and the tilt of the substrate in a direction perpendicular to said synchronous moving direction is controlled; and

on a decision that said tilt control can not follow-up said synchronous moving, a control, wherein a position of the substrate in an optical axis direction of said projection optical system just prior to the decision is maintained, is performed.

14. A scanning exposure method for exposing said substrate, while moving the substrate in a predetermined direction to an exposure beam which passes through said projection optical system, and detecting a position information of said substrate surface in said optical axis direction of the projection optical system comprising:

measuring convex and concave information on said substrate surface, while moving the substrate in the predetermined direction in a condition that the substrate is not exposed; and

deciding whether a tilt of the substrate in the predetermined direction is adjusted or not during an exposure of the substrate, by using said convex and concave information measured, based on said position information detected.

15. The scanning exposure method according to claim 14, wherein

deciding whether a tilt of the substrate in the predetermined direction is adjusted or not during an exposure

of the substrate so that a deterioration of positioning accuracy of said image plane of said projection system and said substrate surface is prevented.

16. A scanning exposure apparatus which is used to transfer a pattern formed on a mask onto a divided area on a substrate through a projection optical system, moving the mask and the substrate, comprising:

a mask stage which holds the mask;

a substrate stage which holds the substrate;

a first detecting system which detects a position for at least one of detection point in an optical axis direction of said projection optical system, wherein the detection point is in a illumination area on said substrate surface;

a first driving system which drives the mask stage and the substrate stage in planes perpendicular to said optical axis direction of said projection optical system;

a second driving system which drives the substrate stage to at least one of the optical axis direction of the projection detecting system and a tilt direction;

a memory unit which stores a data representing a surface condition of said divided area; and

a control system which synchronously moves the mask stage and the substrate stage by controlling the first driving system, while performing said focusing control by controlling the second driving system based on a result from the first detecting system, wherein a focusing control mode to be used in the transfer of a pattern onto said divided area is decided from a plurality

of focusing control modes based on the data representing the surface condition of the divided area.

17. The scanning exposure apparatus according to claim 16, wherein

said control system decides said focusing control mode based on a relation between data representing said surface condition of said divided area and data for said shape of said illumination area.

18. The scanning exposure apparatus according to claim 17, wherein

said plurality of focusing control modes include a first mode in which a tilt control in a direction of said synchronous moving of said substrate is performed by following-up the synchronous moving, and a second mode in which the tilt control in the direction of the synchronous moving of the substrate is not performed by following-up the synchronous moving.

19. The scanning exposure apparatus according to claim 18, wherein

said data representing said surface condition on said divided area is a predominant wavelength corresponding to a predominant frequency of which amplitude is maximal in a spatial frequency distribution, which shows a repeating unit_area of said pattern to be transferred in said divided area having a convex and concave on said substrate, wherein said convex and concave in a direction of said optical axis of said projection

optical system is in said synchronous direction, and

data for said shape of said illumination area is a slit width in the synchronous moving direction of the illumination area; and

said control system performs said focusing control of said substrate in said first mode when said predominant wavelength is not shorter than the slit width, and the control system performs the focusing control of the substrate in said second mode when the predominant wavelength is shorter than the slit width.

20. The scanning exposure apparatus according to claim 19, further comprising a second detecting system which detects a tilt of said substrate stage in said synchronous moving direction to a virtual plane perpendicular to said optical axis direction of said projection optical system and in a direction perpendicular to the said synchronous moving direction; and

said control system performs said focusing control based on detection results from said first and second detecting systems.

21. The scanning exposure apparatus according to claim 20, wherein said plurality of focusing control modes further include a third mode which maintains said surface_of said substrate stage in parallel with said virtual plane based on a detection result from said second detecting system, and

said exposure apparatus further comprises a calculating

operation unit which acquires detection result data by using said first detecting system during said synchronous moving under the focusing control in said third mode, and the exposure apparatus obtains said surface condition of said divided area based on the detection result data.

22. The scanning exposure apparatus according to claim 21, wherein

said calculating operation unit calculates said spatial frequency distribution formed by said concave and convex along said synchronous moving direction of said substrate, wherein the concave and convex in said optical axis direction of said projection optical system are formed in said area for repeating unit of a pattern to be transferred in said divided area; and

then the calculating operation units obtains a predominant wavelength corresponding to a predominant frequency which is maximal in the spatial frequency distribution to store in said memory unit.

23. A making method of a scanning exposure apparatus, which transfers said pattern formed on said mask through a projection optical system, while moving a mask and a substrate synchronously, comprising:

providing a mask stage which holds said mask;

providing a substrate stage which holds the substrate;

providing a first detecting system which detects a position for at least one of detection point in an optical axis direction of said projection optical system, wherein the

detection point is in a illumination area on said substrate surface;

providing a first driving system which drives the mask stage and the substrate stage in planes perpendicular to said optical axis direction of said projection optical system;

providing a second driving system which drives the substrate stage to at least one of the optical axis direction of the projection detecting system and said tilt direction;

providing a memory unit which stores a data representing a surface condition of said divided area; and

providing a control system which synchronously moves the mask stage and the substrate stage by controlling the first driving system, while performing said focusing control by controlling the second driving system based on a result from the first detecting system, wherein a focusing control mode to be used in the transfer of a pattern onto said divided area is decided from a plurality of focusing control modes based on the data representing the surface condition of the divided area.

24. The making method according to claim 24, further comprising:

providing a second detecting system which detects a tilt of said substrate stage in said synchronous moving direction to a virtual plane perpendicular to said optical axis direction of said projection optical system and in a direction perpendicular to the said synchronous moving direction.

25. The making method according to claim 23, further comprising:

providing an calculating observation system which acquires a detection result data from said first detecting system during said synchronous moving under said focusing control, which maintains said substrate stage surface to be substantially parallel to said virtual plane, based on said detection result from said second detecting system to obtain said surface condition of said divided area.

26. (Amended) The scanning exposure method according to claim 1, wherein

said focusing control mode is decided prior to a transfer operation to said divided area.

27. (Amended) The scanning exposure apparatus according to claim 16, wherein

said control system decides said focusing control mode prior to a transfer operation to said divided area.

28. (Added) The scanning exposure apparatus according to claim 23, wherein

said control system decides said focusing control mode prior to a transfer operation to said divided area.

29. (Added) A device manufactured by using said exposure apparatus according to one of claims 16 to 22, and 27.

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30. (Added) A device manufacturing method including a lithographic process, comprising:

a predetermined pattern is transferred onto a divided area, which is divided by street lines on a substrate, by using one of said method according to claims 1 to 15, and 26.